

# Is the use of antibiotics necessary for the prevention of endophthalmitis in intravitreal drug injections?

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## Letter to the editor

The use of anti-vascular endothelial growth factor (VEGF) agents, one of the most common procedures in ophthalmology, has increased dramatically in recent years.<sup>1</sup> Intravitreal anti-VEGF is used as one of the main treatments for the treatment of many retinal pathologies such as diabetic macular edema (DME), neovascular age-related macular degeneration (nAMD), central and branch retinal vein occlusion.<sup>1,2</sup> Although the incidence of endophthalmitis is rare, it is the most feared complication of intravitreal injections due to its visual morbidity. Topical antibiotic prophylaxis (TAP) is still being performed in many clinics to prevent endophthalmitis in anti-VEGF intravitreal injections. However, the utility of antibiotics in the prevention of endophthalmitis after intravitreal injections has recently been questioned.<sup>1-5</sup>

Strategies for prophylaxis of endophthalmitis often rely on the use of antiseptics and antibiotics. However, the use of antibiotics to prevent the development of endophthalmitis after injection is controversial.<sup>1-5</sup> No prospective randomized trial demonstrated the benefits of TAP. In addition, TAP increased the rapid development of antibiotic-resistant virulent bacteria on the ocular surface and in the oral area.<sup>2-4</sup> In some large series of studies, intravitreal injection-related endophthalmitis rate was found to be equal between the groups receiving TAP and non-receiving TAP and in some studies, it was found that the rate of endophthalmitis increased with antibiotic use.<sup>1,5</sup> Besides, in a study, repeated use of topical fluoroquinolone after the intravitreal injection has been shown to result in significantly increased bacterial resistance compared to control eyes and shown significant levels of resistance to third and fourth generation fluoroquinolones in patients treated with TAP after multiple intravitreal injections.<sup>1,5</sup> It was also found that cultures from eyes with endophthalmitis had higher antibiotic resistance rates among bacterial isolations and resistant bacterial strains caused more severe ocular inflammation than sensitive strains.<sup>4,5</sup> In another study, intravitreal injection endophthalmitis rates were found to be lower when the procedure was performed in the operating room compared to outpatient clinics (1,5). In addition to operating room conditions, surgical masks, sterile gloves, eye speculum, povidone-iodine, and eye drape are also important to prevent endophthalmitis related to intravitreal injection.

Given the numerous studies that show that TAP does not prevent endophthalmitis after intravitreal injection, some researchers believe that TAP is not necessary after intravitreal injection.<sup>1,5</sup> Recent scientific evidence suggests that TAP may lead to antibiotic resistance, increase the risk of endophthalmitis, and cause unnecessary costs.<sup>1-4</sup> In many clinical studies, the administration of povidone-iodine to the ocular surface before injections is the only effective prophylactic measure.<sup>1,2</sup> Povidone-iodine has no side effects, is cheap and does not cause

bacterial resistance. Therefore, TAP is unnecessary and harmful and also costly.<sup>1-5</sup>

Administration of povidone-iodine to the ocular surface prior to anti-VEGF intravitreal injections may be a promising model nationwide to reduce the threat of resistance to TAP and reduce costs. The national and international ophthalmology community should take immediate action and prepare a global guideline to reduce the development of virulent bacteria and to eliminate potential unnecessary costs after TAP applications to prevent endophthalmitis in anti-VEGF intravitreal injections.

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## Conflicts of interest

The author declares no conflicts of interest.

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